

**Conasauga Ranger District
Chattahoochee-Oconee National Forests**

**WATERSHED ASSESSMENT:
SUMAC CREEK WATERSHED
(031501010202)**



May 2011

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(6th level HUC #031501010202)

Introduction

Analysis at a landscape scale is a process used to characterize the human, aquatic, and terrestrial resources, and interactions within an area. It provides a systematic way to understand and organize ecosystem information. These assessments enhance our ability to estimate direct, indirect, and cumulative effects of management activities and guide the general type, location, and sequence of appropriate management activities.

In most cases, a combination of small sub-watersheds or sixth level Hydrologic Unit Codes (HUCs) will be used as the area for analysis. The watershed scale was selected because watersheds are well-defined and they provide a sense of place. However, when there are overriding biological or social issues these analysis units may vary and be more landscape-oriented.

Rather than attempting to identify and address everything in the ecosystem, the watershed assessment focuses on key prescription areas and resource concerns in the area being analyzed. These concerns may be known or suspected before undertaking the analysis; or they may be brought up by the public or discovered during the inventory phase. The watershed assessment describes desired and existing conditions and determines possible management practices to sustain or restore ecosystem functions. The process is also incremental: new information from surveys and inventories, monitoring reports, the public, or other analyses can be added at any time.

Watershed assessments are not decision-making processes, and are not driven by existing law. Rather, it is a stage-setting process. The results of assessments establish the context for subsequent site-specific actions needed to implement the Forest Plan. Site-specific actions must then undergo planning requirements consistent with the National Environmental Policy Act and other applicable laws, regulations, and direction.

Information about this process can be found in the “Ecosystem Analysis at the Watershed Scale” (USDA, 1995) and “A Framework for Analyzing the Hydrologic Condition of Watersheds” (USDA, 1998).

I. Characterization of the Watershed

The Sumac Creek watershed is within the Conasauga River drainage of the upper Coosa River Basin, which is known for its high numbers of rare and endemic aquatic fauna. The Conasauga River has the most diverse fish and mussel assemblage on the Chattahoochee National Forest.

The Sumac Creek watershed is within the Conasauga River (Middle) 5th-level hydrologic unit (HUC #0315010102). Among this area's 70 species of native fish, three are federally listed and 12 federally listed mussels occur. The Conasauga River (Middle) HUC encompasses 91,520 acres, 20% of which are National Forest lands (17,913 acres). The Sumac Creek watershed is one of 12 6th-level HUCs within the Conasauga River (Middle) 5th-level HUC. It is located in the mountainous eastern portion (Appendix A, map 1).

Sumac Creek and its main tributary, Muddy Branch, are perennial streams flowing east to west through the watershed, with about a 2% gradient. Fish typically found in the upper Coosa River basin occur, including endemic darters. There are no known T& E species within this watershed, and no EPD-listed impaired stream segments on National Forest lands.

The Sumac Creek watershed (6,740 acres) is bounded by Mill Creek Road (Forest Road 630) to the south, West Cowpen Road (FR 17) to the east and northeast, Pleasant Gap Road (FS 17A) to the northwest, and Georgia Highway 411 to the west. The watershed is positioned in the western-facing toe slopes and lower uplands of the Metasedimentary Mountains of north Georgia, within a Landtype Association (LTA) known as the Cohutta Foothills (Appendix B). The Cohutta Foothills represent a transition zone between several levels of ecological divisions, including the physiographic province or section level (Southern Ridge and Valley to the west and Blue Ridge Mountains to the east). This transition zone results in an area intermediate in elevation, vegetative communities, terrestrial fauna, landform, and climate to both ecological sections.

In the Sumac Creek watershed, this results in low to moderate elevations, mostly xeric (dry) sites with thin, well-drained soils and mixed oak-yellow pine communities. The topography of the watershed is characterized by westward-trending ridges and steep, narrow stream bottoms. Elevations range from less than 800 feet near Georgia Highway 411 to nearly 2800 feet on West Cowpen Road near the Mill Creek overlook. Rainfall amounts average at 56 inches per year (similar to Southern Ridge and Valley rainfall).

The primary reason this watershed was selected for the assessment is based on the current conditions within the vegetation communities. Today's vegetation represents a departure from historic composition and structure. Shortleaf pine was more abundant historically. Selective logging, southern pine beetle infestations, and fire suppression have contributed to the decline of shortleaf pine in this watershed and throughout the southern Appalachians. The lack of fire has also altered historic forest structure within the xeric oak forests in Sumac Creek. This has resulted in a major increase in shade-tolerant, fire-intolerant species in the midstory of these upland stands. This condition limits the ability of oak and shortleaf pine to regenerate and be recruited into the overstory. Both shortleaf pine and xeric oaks depend on periodic disturbance (including fire) to maintain an open forest structure, necessary for continued dominance on the site. Native plants and animal species adapted to the open structure provided by shortleaf pine-oak woodlands are dependent on characteristics such as abundant herbaceous vegetation at the ground level (especially bunch-grasses) and complex midstory and subcanopy layers. Many of these species (such as northern bobwhite quail and many neotropical migratory

songbirds) have experienced steep population declines over the past several decades as these conditions were eliminated.

Recreational use of the Sumac Creek watershed is low; use is limited to hunting, fishing, hiking, mountain biking, and horseback riding. The Sumac Creek Trail, FDT 217, and Sumac Creek Spur Trail, FDT 217A, are the only designated trails within the watershed.

2. Identification of key resources or prescription areas

The majority of the Sumac Creek watershed is located within Management Prescription 9.H (Appendix A, map 2). The purpose of this prescription is to emphasize management, maintenance, and restoration of plant associations to their ecological potential. The focus should be on 1) communities in decline, 2) communities converted from historic composition by land uses, 3) communities on ecologically appropriate sites but unable to maintain themselves, and 4) communities infrequent on national forest but not regionally rare (Plan p. 3-167). The shortleaf pine forest maintained by fire is a community in decline in the Sumac Creek watershed; it has been converted from historic composition by land uses, and it is unable to maintain itself without management. This situation is present not only in this watershed but throughout the Cohutta Foothills LTA and southern Appalachians.

A secondary and related issue pertaining to vegetation in the Sumac Creek watershed is the lack of structural characteristics available in mid-late successional forests that have developed as dense, closed canopied stands. This inhibits the development of structurally complex understory and sub-canopy layers. The lack of vertical structure reduces wildlife habitat quality and has been identified as a main contributor to the decline of many forest birds.

A third issue is the lack of early successional forest in the watershed. The amount of this type of habitat has been reduced since the 1930's as regenerating forests matured, fire was suppressed, grazing herds eliminated, and timber management decreased. Species dependent on these habitats at middle and high elevations have experienced precipitous declines in the area.

Approximately 20 percent of the watershed (1332 acres) is located within Management Prescription 7.B. This prescription is focused on maintaining or restoring high scenic quality along a highway or road. The corridor along Mill Creek Road (Forest Road 630) and West Cowpen Road (Forest Road 17) falls within this prescription.

The remainder of the watershed (54 acres or 1%) falls within the Cohutta Wilderness (Management Prescription 1.A). The current condition of this portion of the watershed is consistent with Wilderness Management and no resource issues are known to exist.

3. Description of existing and desired future conditions

Vegetation

Existing Condition

Vegetation in the Sumac Creek watershed is dominated by yellow pine and upland oak forest types. Combined, they account for approximately 86 percent of the acres in the watershed. Yellow pine and mixed yellow pine-oak forest types occupy nearly 3500 acres (52%) and approximately 2300 acres (34%) support oak and mixed oak-yellow pine forest types (Appendix A, map 3). These pine and oak forest types typically occupy the mid to upper slopes and ridges within the watershed. The yellow pine and mixed yellow pine-oak types generally occur on the south and west facing slopes and ridges, while the oak and mixed oak-pine types typically occur on the mid to upper slopes with northerly aspects. The steep walled drainages and lower protected slopes are generally occupied by cove hardwoods, white pine and hemlock forest types which represent the remaining 14 percent of the acres in the watershed. The forest type distribution by acres is presented in the table below:

Forest Type	Acres	Forest Type	Acres
3 – White Pine	179	41 – Cove Hardwood-White Pine-Hemlock	411
5 - Hemlock	111	42 – Upland Hardwoods-White Pine	50
9 – White Pine-Cove Hardwood	63	45 - Chestnut Oak-Scarlet Oak-Yellow Pine	142
10 – White Pine-Upland Hardwood	107	47 – White Oak-Black Oak-Yellow Pine	192
12 – Shortleaf Pine-Oak	211	50 – Yellow Poplar	8
13 – Loblolly Pine-Oak	22	52 – Chestnut Oak	815
16 – Virginia Pine-Oak	252	53 – White Oak-Red Oak-Hickory	1085
31 – Loblolly Pine	286	54 – White Oak	12
32 – Shortleaf Pine	447	56 – Yellow Poplar-White Oak-No. Red Oak	40
33 – Virginia Pine	2275		

Yellow Pine and Yellow Pine-Oak

The Sumac Creek watershed contains an overabundance of acres supporting stands of even-aged Virginia pine forest types. In fact, Virginia pine and mixed Virginia pine-oak forest types (33 and 16) represent nearly 38 percent of the acres in the Sumac Creek watershed and account for nearly three-quarters of the acres classified as yellow pine or yellow pine-hardwood forest types. Over 86 percent of the acres currently supporting Virginia pine forest types have originated since 1920. Nearly two-thirds of these developed between 1920 and 1941. These older stands most likely developed as a result of the timber harvests associated with the 1920's and 1930's prior to Forest Service acquisition and the subsequent fire suppression efforts in the years following acquisition.

In contrast, acres supporting shortleaf pine (32) and mixed shortleaf pine-oak (12) forest types are notably less. While shortleaf pine trees can be found throughout the watershed, stands supporting these forest types are infrequent, especially in context of the acres suitable for shortleaf pine. Shortleaf pine and shortleaf pine-oak forest types currently represent only 10 percent of the watershed acreage and less than 19 percent of the acres classified as pine or pine-oak types. The existing shortleaf pine and shortleaf pine-oak forest types in the Sumac Creek watershed are of two distinct age classes: (1) those in late or older successional stages which represent approximately 40 percent (approximately 261 acres) of the shortleaf pine or associated mixed type and (2) those in the sapling/pole stage (397 acres) which account for the remaining 60 percent of the acres occupied by shortleaf pine or mixed shortleaf pine-oak forests. The latter class represents the District's efforts during the 1970's through the early 1990's to restore shortleaf pine forest types in the watershed. Many of the attempts to restore shortleaf pine in the Sumac Creek watershed during this same time period were unsuccessful and most of these areas now support even-aged stands of mixed Virginia pine and white pine. Other attempts were marginally successful and represent this younger age class.

Unfortunately, many of these marginally successful stands are at risk of succumbing to Virginia pine as well. The older age of shortleaf pine stands in the watershed are also marginally maintaining the forest type. Southern pine beetle (SPB) and past logging practices have reduced the numbers of mature shortleaf pine in these stands and exclusion of fire has interrupted the establishment of younger cohorts of shortleaf pine beneath the overstory. These mature stands are also characterized by closed canopy structure, which represents a significant departure from the natural open stand structure in shortleaf pine and mixed shortleaf pine-oak communities capable of self maintenance.

During the 1980's, the District established loblolly pine on some of the upland sites in the Sumac Creek watershed. Loblolly pine forest types (13 and 31) occupy less than five percent of the watershed acreage and comprise approximately 9 percent of the acres currently classified as yellow pine or yellow pine-oak types. These stands are currently overstocked and are at significant risk to southern pine beetle infestation.

Oak and Oak-Pine

Oak and mixed oak-pine forest types (52, 53, 54, 42, 45, and 47) account for 34 percent of the acres and represent 83 percent of all the hardwood forest types in the Sumac Creek watershed. Little management has occurred across the Sumac Creek watershed in these forest types during the last 30 years. As a consequence, several conditions have developed: (1) in the absence of intermediate disturbances (including fire), a cohort of understory obligates and other shade-tolerant species, including red maple, white pine, blackgum and sourwood have established in the mid-story of many upland oak stands - these conditions impede the development of oak

reproduction in sufficient numbers and sizes to replace the overstory following major overstory disturbances; (2) the age class distribution of the forest type has progressively moved towards late and older stages - approximately 96 percent of the acres supporting oak and mixed oak-pine forest types are older than 80 years and over 60 percent are over 100 years in age; and (3) due to this imbalance in age classes, over 90 percent of the acres supporting these forest types currently contain a site index: age ratio less than 1.0 - this index measures the susceptibility of oak stands to oak decline, with values less than 1.0 being at risk. In the absence of adequate oak reproduction in these mature stands, it is probable that many oak stands in this watershed, particularly those on more productive sites, will succeed to more shade tolerant species as mature oak trees die.

Recorded management of oak forest types in the Sumac Creek watershed is limited to the following treatments during the last 30 years: (1) during the early 1980's, a mid-story herbicide treatment was applied on less than 200 acres of mature upland oak stands occurring on northern aspects, and (2) during this same time period, two upland oak stands were naturally regenerated to oak forest types.

Mesic Deciduous Hardwoods

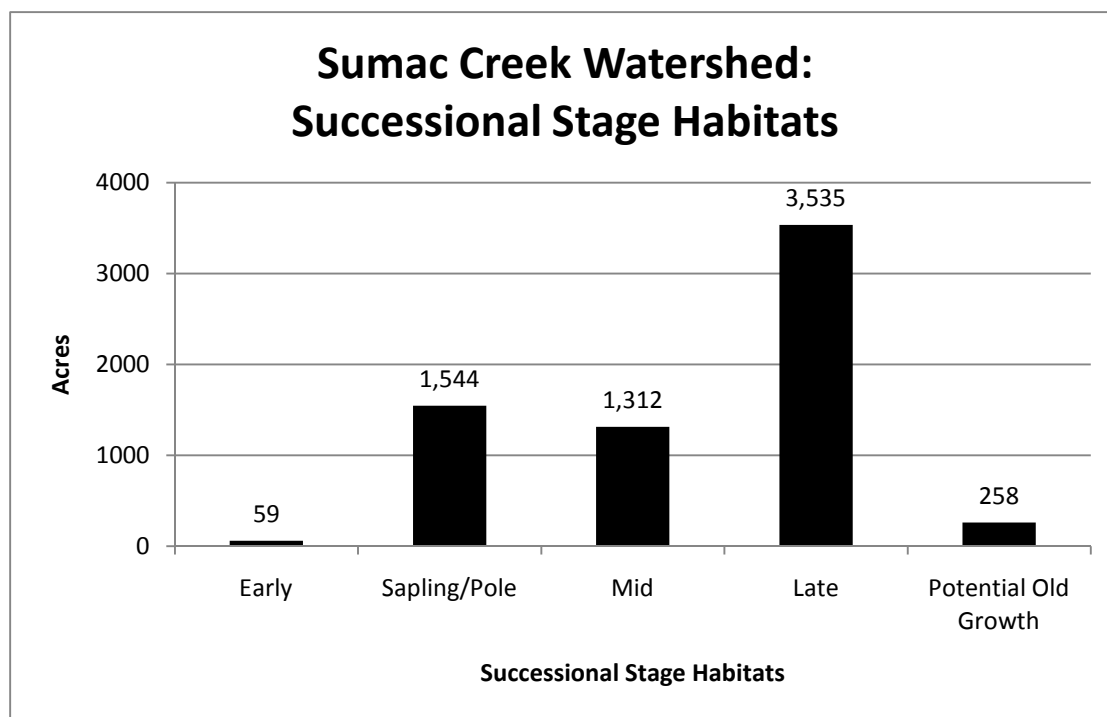
Cove hardwood and mesic hardwood forest types (41, 50, and 56) occupy an estimated 460 acres in the Sumac Creek watershed. As in other forest types in this watershed, closed canopy structure is the prevailing condition in these mesic deciduous forest types. Mesic deciduous forest types represent the remaining 17 percent of the hardwood forest types currently classified in the watershed. These forest types are generally restricted to the lower protected slopes and drainages within the watershed. Eastern hemlock and white pine are often associates of these mesic deciduous forest type assemblages.

White Pine and Hemlock

White pine (3), mixed white pine-hardwoods (9 and 10) and hemlock (5) forest types occupy 460 acres or roughly 7 percent of the area within the Sumac Creek watershed. White pine forest types account for over three-quarters of the acres classified in this group. Areas supporting hemlock forest types account for approximately 23 percent of the acres in this group and represent less than two percent of the acres in the watershed. In general, this assemblage of forest types occur along drainages and lower slopes within the Sumac Creek watershed; however, in some areas white pine forest types occupy upland sites where yellow pine or oak types would naturally occur. As described above, some of the District's earlier attempts of shortleaf pine restoration gave way to white pine and/or Virginia pine forest types. Invasion of the mid-story of upland oak stands by white pine reproduction is also quite common in this watershed where fire has been excluded for decades.

Hemlock Woolly Adelgid populations in the Sumac Creek watershed are still light based on 2010 observations. Currently, one Hemlock Conservation Area (HCA 105) occurs within the watershed. Predator beetle release treatments were applied in the HCA during the spring of 2010. A chemical treatment is planned in HCA 105 during the spring of 2011.

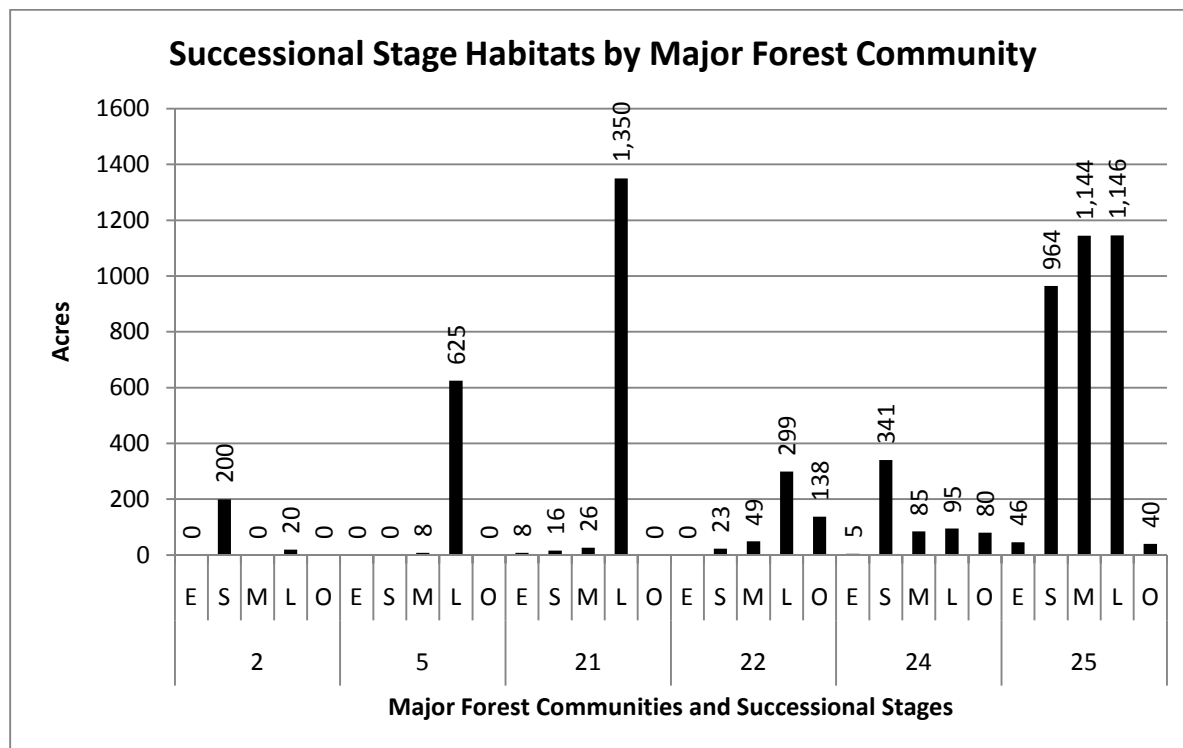
Late successional stage forest habitat is the prevailing condition in the Sumac Creek watershed; over 50 percent of the watershed is currently in this condition (Appendix A, map 4). Mid, late and potential old growth successional stage forest habitats combined account for over 5100 acres and represent over 75 percent of all of the acres in the watershed. Pole/Sapling successional stage forest habitats occupy nearly one-quarter (23 percent) of the acres in the Sumac Creek watershed. These acres represent the District's management activities during the previous four decades. Early successional stage forest habitat is limited to less than one percent of the acres in the watershed; this acreage is comprised of patches of fire-killed and SPB-killed trees. Successional stage habitats by acres are displayed in the figure below:



(Refer to the following references for explanation of the figures presented in this section: Final EIS for the Land and Resource Management Plan for the Chattahoochee-Oconee NFs, p. 3-154 for forest ages corresponding with successional stages; a crosswalk of forest types and Major Forest Communities can be found on p. 3-100. Ages corresponding to potential old growth can be referenced in Appendix D-5-6 of the Land and Resource Management Plan – Old Growth Types correspond to Major Forest Community Types).

Successional Stage Habitats by Major Forest Community Type

There are five Major Forest Community types in the Sumac Creek watershed. Their age class distribution expressed as successional stage habitat is shown in the figure below:



(2) Conifer/Northern Hardwood; (5) Mixed Mesophytic and Western Mesophytic; (21) Dry-Mesic Oak Forest; (22) Dry and Xeric Oak Forest, Woodland, and Savanna; (24) Xeric Pine and Pine-Oak Forest and Woodland; (25) Dry and Dry-Mesic Oak-Pine Forest

Late successional stage forest habitat (L) is the predominant condition in community types 5, 21 and 22. This successional stage represents 59 to 99 percent of the acres occupied by these three Forest Community types in the Sumac Creek watershed. Mid (M), late and potential old growth (O) successional stages combined account for 96 to 100 percent of the acres occupied by these same Community types. Oak forest types are primarily included within these broader Community types (5, 21, and 22) and as previously noted, the age class distribution within the oak forest types is heavily skewed towards these later successional stages.

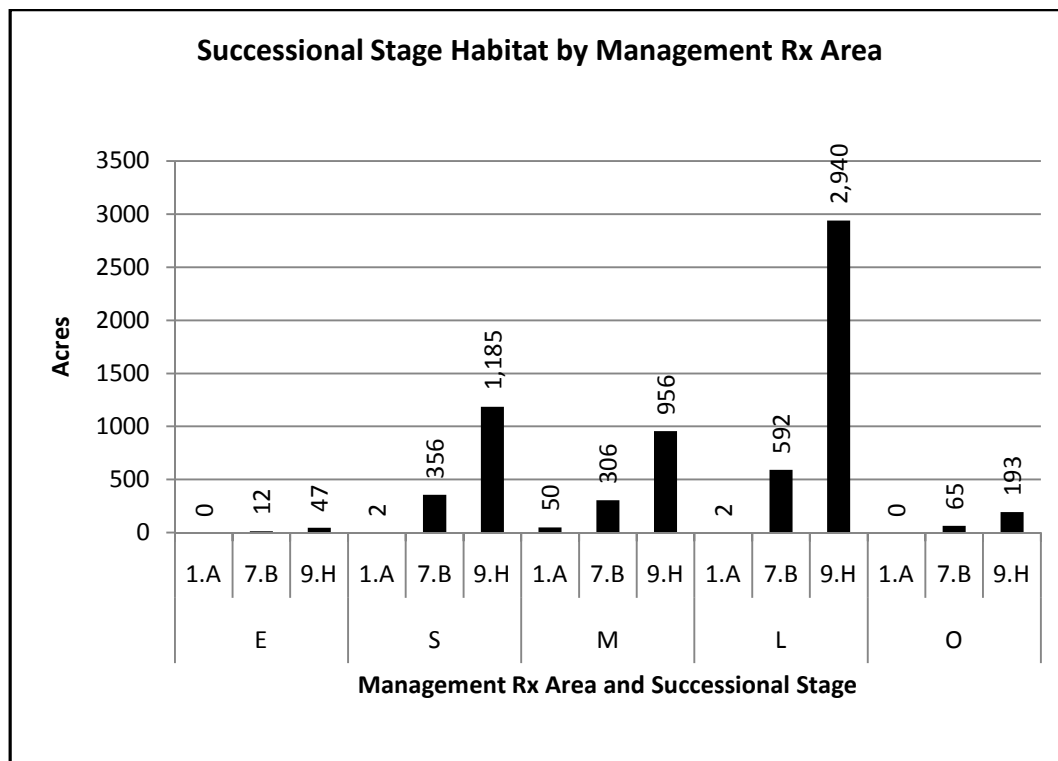
The Sapling/Pole successional stage forest habitat (S) is the prevailing condition among the pine Community types in the Sumac Creek watershed. This stage accounts for 57 of the acres in the Xeric Pine and Pine-Oak Forest and Woodland (24) Community Type, and over 90 percent of the acres in the Conifer/Northern Hardwood (2) Community Type. Additionally, the pine forest types included in the Dry and Dry-Mesic Oak-Pine (25) Community Type support a significant amount of Sapling/Pole successional stage habitat (nearly one-third of the acres in the Community Type). These acres represent the District's management in pine stands during the

last 40 years as previously described. Mid, late and potential old growth successional stages account for 43 percent of the acres in the Xeric Pine and Pine-Oak Forest and Woodland (24) Community type and represent the remaining 10 percent of acres in the Conifer/Northern Hardwood (2) Community Type. Mid, late and potential old growth successional stage habitat represents approximately 70 percent of the Dry and Dry-Mesic Oak-Pine (25) Community Type. These acres represent the older age class of Virginia Pine previously discussed.

As earlier noted, early successional stage forest habitat (E) is limited across all Forest Community Types in this watershed.

Successional Stage Habitat by Management Prescription Area

The Sumac Creek watershed is divided into three Management Prescription Areas: 1.A Designated Wilderness Areas, 7.B Scenic Corridors and Sensitive Viewsheds, and 9.H Management, Maintenance, and Restoration of Plant Associations to Their Ecological Potential. The successional stage habitats by Management Prescription Area are provided in the figure below:



Approximately 49 percent of the acres in Management Prescription Area 7.B are currently occupied by late (L) or potential old growth (O) successional stage forest habitats. Mid (M), late and potential old growth successional stage habitats combined account for 72 percent of the

acres in this prescription area. There are an estimated 12 acres of early (E) successional stage forest habitat in Management Prescription Area 7.B within the Sumac Creek watershed.

Nearly 60 percent of the acres in Management Prescription Area 9.H are currently occupied by late or old growth successional stage forest habitats. Mid, late and potential old growth successional stage habitats combined represent approximately 77 percent of the acreage in this prescription area. Acres supporting early successional stage forest habitat is limited to 47 acres in Management Prescription Area 9.H.

There are no acres currently allocated to old growth as defined by Management Prescription Area in the Sumac Creek Watershed. Approximately 54 acres of Management Prescription Area 1.A – Designated Wilderness Areas are within the watershed; these acres are considered compatible with old growth allocation. Another 258 acres within the Sumac Creek watershed are currently classified as potential old growth (based on Old Growth Type and minimum age specifications), but are not currently allocated as small old growth blocks as defined by the Forest Plan. The following table summarizes the potential old growth conditions within the Sumac Creek watershed:

Mgt Rx Area	Old Growth Type						Total	Total Compatible
	2	5	21	22	24	25		
	-----Acres-----							
1.A	1	8	1	0	2	42	54	54
7.B	0	0	0	41	24	0	65*	0
9.H				97	56	40	193*	0
Total	1	8	1	138	82	82	312	54

*Acres meeting minimum old growth type age specifications as described in the Forest Plan.

Desired future conditions and recommendations

Goal 2: A diversity of habitat will be provided for the full ranges of native and other desired species. Sufficient amounts of interior and late-successional habitat as well as early successional habitat will be provided to meet needs of all successional communities. Early successional habitat will be well distributed in all forest types, elevations, aspects, and slopes including riparian corridors.

The desired successional stage habitat conditions are presented in the table below:

Mgt. Rx Area	Early Successional Habitat				Mid to Late Successional			Late Successional		
	Desired Range	Current	Desired		Desired Range	Current	Desired	Desired Range	Current	Desired
			Min	Max						
		-----Acres-----				-----Acres-----			-----Acres-----	
7.B	0-4%	12	0	53	75%	963	999	50%	657	666
9.H	4-10%	47	213	532	50%	4089	2660	20%	3133	1063

Recommendations:

Manage forest vegetation to provide a diversity of successional stage habitat within ranges specified by Management Prescription Areas. Establish up to 41 acres of early successional habitat (ESH) in Management Prescription Area 7.B and from 166 to 485 acres within Management Prescription Area 9.H. ESH would be established primarily from recommended restoration activities associated with objectives listed under Goal 3 (described below). Acres of mid to late and late successional habitat currently meet or exceed desired levels for both management prescription areas.

Goal 3: Enhance, restore, manage and create habitats as required for wildlife and plant communities, including disturbance-dependent forest types.

Shortleaf Pine Restoration: Shortleaf pine was once prevalent along the ridgetops and southern exposed aspects at lower elevations throughout the Southern Appalachians. Fire exclusion, past logging practices and southern pine beetle epidemics have greatly reduced the presence of this once common forest community. Currently, shortleaf pine and shortleaf pine-oak forest types occupy less than 20 percent of the acres in the Sumac Creek watershed suitable for this xeric yellow pine community.

Desired condition: Xeric upland sites support historic forest composition, including a greater presence of shortleaf pine on sites currently occupied by Virginia pine.

Recommendations: Restore shortleaf pine and shortleaf pine-oak forest types on sites where they once likely occurred (OBJECTIVE 3.1). This includes regeneration of current Virginia pine stands; site preparation of regenerated sites using a combination of manual, chemical, and/or prescribed fire methods; hand planting of shortleaf pine seedlings; release of planted seedlings by manual, prescribed fire or chemical methods; and pre-commercial thinning at the onset of crown closure. Nearly 3500 acres of Virginia pine forest types are available for shortleaf pine restoration. Commercial timber sales would be utilized to regenerate the Virginia pine stands to initiate the restoration process. Based on desired levels of ESH (described above), up to 41 acres could be restored in Management Prescription 7.B and from 166 to 485 acres could be restored to shortleaf pine forest types in Management Prescription 9.H.

Open Woodland: This open forest condition was once frequent on the xeric upland ridges and exposed slopes of the Southern Appalachians. Open woodland was maintained by frequent low intensity fire. Open conditions and periodic fire encouraged establishment of a grassy understory which served to carry the low intensity fires. These same conditions also served to maintain species composition by favoring fire tolerant species including many xeric oak and pine species adapted to frequent fire events. Currently, there are no areas within the Sumac Creek watershed that are in this open woodland condition. Many of the sites in the Sumac

Creek which could support this condition are currently in closed canopy oak, oak-pine or pine-oak forests.

Desired Condition: Historic stand structure (open canopy forest structure and herbaceous ground layer) and processes (frequent, low intensity fire) are restored and maintained in xeric upland oak, oak-pine, and pine-oak stands.

Recommendations: Establish an open woodland condition on appropriate sites using a combination of commercial thinning, prescribed fire (both dormant and growing season), and manual cut/leave operations (OBJECTIVE 3.4). There is an estimated 2200 acres suited to open woodland management in the Sumac Creek watershed. These acres include mixed yellow pine-oak, oak-yellow pine, and xeric oak and pine forest types. A short fire return interval of 3-10 years would be necessary to control the woody mid-story.

Oak/Oak-Pine Maintenance: Oak and mixed oak-pine forest type communities depend on varying degrees of disturbance to maintain their dominance on a given site. As previously discussed, most upland oak stands in the Sumac Creek watershed are currently in closed canopy forest structure and most have a dense mid-story of shade tolerant species. This is primarily the consequence of a lack of intermediate disturbances, including fire, which over time tend to improve the competitive status of oak over its neighbors, allowing small oak seedlings to develop into large advance reproduction. Inventory data from the Sumac Creek watershed indicates that over 96 percent of oak stands are in late successional stages (over 80 years in age). The preceding conditions will likely lead to many upland oak stands, particularly those on productive sites, succeeding to more shade tolerant forest types as mature overstory oaks die.

Desired Condition: stand structure in mature upland oak stands are improved to permit the establishment and development of competitive oak reproduction to maintain oak dominance on these sites in the future.

Recommendations:

- (1) On moderate to highly productive sites, reduce mid-story competition in upland oak stands through use of selective herbicide applications to encourage development of large, competitive advance oak reproduction, while minimizing establishment of yellow poplar. Inventory data indicates that over 650 acres of oaks stands on productive sites (SI >80 ft) on slopes less than 40 percent exist within the Sumac Creek watershed. (OBJECTIVE 3.7).
- (2) On marginally productive and lower quality sites, commercially thin mature oak stands to improve conditions for establishment and development of advance oak reproduction.

Utilize prescribed fire in combination with commercial thinning to maintain open woodland conditions and reduce mid-story competition to favor establishment and growth of oak reproduction. It is estimated that approximately 1045 acres of mature upland oak stands on moderately productive sites and on operable slopes (< 40 percent slope) exist within the Sumac Creek watershed (OBJECTIVE 3.7).

Goal 8: contribute to maintenance or restoration of native tree species whose role in forest ecosystems: (a) has been reduced by past land use; or (b) is threatened by insects and disease, fire exclusion, forest succession, or other factors.

Shortleaf Pine Maintenance: Shortleaf pine and mixed shortleaf pine-oak communities were historically maintained by frequent fire and other intermediate disturbances which suppressed mid-story canopies, exposed mineral soil, and maintained open woodland stand structures. These conditions favored shortleaf pine seedlings as well as their xeric oak associates, allowing for younger cohorts of shortleaf pine and oak to develop beneath the sparse overstory. Following more intense disturbances, this understory cohort could occupy the space created by the overstory disturbance, thus perpetuating the forest type on the site. As previously noted, most of the sites suited to shortleaf pine in the Sumac Creek watershed are currently occupied by Virginia pine, which has flourished in the absence of the disturbance regime described above. Mature shortleaf pine forest types occupy less than 4 percent of the acres in the Sumac Creek watershed. Suppression of fire has allowed these stands to grow crowded and for shade tolerant and fire intolerant species to invade the mid-story of the mature stands. Southern pine beetle and past logging practices have also impacted these stands by reducing the shortleaf pine component in these stands.

Desired Condition: Historic stand structure and processes are restored in mature shortleaf pine and mixed shortleaf pine-oak forest types to maintain this forest community on these sites into the future.

Recommendations: Reduce overstory density through commercial thinning to re-establish historical woodland stand structure required for maintenance of this forest type and its associates (OBJECTIVE 8.1). Control shade tolerant and/or fire intolerant mid-story by manual methods and/or with prescribed fire to allow for establishment and growth of shortleaf pine (and oak) seedlings. Maintain a frequent fire return interval of 3-10 years to maintain structure and functions necessary for the long-term maintenance of this disturbance dependent forest type. There is an estimated 261 acres of mature shortleaf pine and shortleaf pine-oak forest types in this watershed.

Goal 9 Manage through protection, maintenance, or restoration, a variety of large, medium, and small old growth patches to provide biological and social benefits;

Goal 20: (a) Provide a well-distributed and representative network of large, medium, and small potential old growth block in the Blue Ridge Mountains and Southern Ridge and Valley ecological sections.

Old Growth: Approximately 54 acres of old growth/old growth compatible management prescription areas exist in the Sumac Creek watershed (Management prescription Area 1.A – Designated Wilderness Areas). There are no individual stands allocated to old growth based on current land classification according stand inventory data.

Desired Condition: In 6th level HUC with at least 1,000 acres, five percent of land is allocated to old growth management

Recommendations: To comply with Forest plan objectives, maintain and/or allocate at least five percent of the Sumac Creek watershed to old growth management that will conserve existing, or provide for the development of future old growth (OBJECTIVE 20.1). A total of 337 acres are needed to meet this objective in the Sumac Creek 6th level HUC. Based on acreage of old growth compatible Management Prescription Areas in this watershed (54 acres), allocate an additional 283 acres to old growth management as small blocks. Approximately 1,300 acres across 43 stands meet or are within 20 years of minimum old growth ages as defined by their respective Old Growth Types. Utilize stand inventory data collected during 2010 to identify stands which most appropriately meet the four defining criteria for old growth as outlined in the Forest Plan. Re-type land classification in selected stands to identify them as old growth.

Goal 40: Through appropriate management, reduce populations of native and non-native pest species or vulnerability to them

Goal 41: Enhance forest health conditions in forest stands that are: (1)substantially damaged by fire, windthrow, pr other catastrophes, or (2) in imminent danger from insect or disease attack.

Forest Health: The Sumac Creek watershed supports over 6400 acres of forest types susceptible to southern pine beetle (SPB), oak decline, and/or hemlock woolly adelgid (HWA). Over 3900 acres of pine forest types (including white pine types) are susceptible to SPB. Most of these stands are overstocked and at risk to SPB infestation. As previously noted, over 90 percent of all oak forest types in the Sumac Creek watershed are at some risk to oak decline due to site index: age ratios less than 1.0. Approximately 871 acres within the watershed support hemlock forest types or other forest types to which hemlock is often an associate. Current HWA levels in this watershed are light based on 2010 observations. Currently only one Hemlock Conservation Area (HCA 105) exists within the Sumac Creek watershed.

Recommendations/Desired Conditions:

- (1) Reduce stem density in overstocked pine stands through commercial and/or pre-commercial thinning to reduce risk of SPB infestations. Approximately 1600 acres of desirable pine forest types exist on slopes less than 40 percent within the Sumac Creek watershed (OBJECTIVE 40.1).
- (2) Naturally regenerate mature upland oak stands that are at risk to oak decline due to site and age relationships (GOAL 41; OBJECTIVE 3.7). This will improve the age class distribution among the oak forest types in this watershed and enhance forest health by establishing young vigorous oak stands. Treatment records indicate that there are approximately 200 acres of oak stands which received a mid-story herbicide treatment during the early 1980's. These may represent opportunities to naturally regenerate mature oak stands. An inventory of the natural regeneration prospects in these stands should be taken to insure adequate stocking of oak can be secured following an overstory removal harvest. Based on target levels of ESH, up to 41 acres could be regenerated in Management Prescription Area 7.B and from 166 to 485 acres in Management Prescription Area 9.H in consideration of the acres that could be potentially restored to shortleaf pine, as previously discussed.
- (3) Use stand inventory data collected from the Sumac Creek watershed during 2010 to identify potential HCAs to add to the district's rotation (GOAL 41). As noted, nearly 900 acres of hemlock and hemlock associated forest types exist in the watershed.

Terrestrial wildlife habitat

Existing condition

National forest land within the Sumac Creek watershed is almost completely forested, and approximately 77 percent of this is mid-late successional stage. This older forest provides important habitat characteristics (i.e. den trees, snags, down woody debris, hard mast capability). Although this high percentage of older forest is sufficient in quantity to provide habitat for species requiring large blocks of contiguous forest, the majority of this successional stage has developed as even-aged, closed-canopied stands. This generally results in a lack of vertical structure, vegetation layers, and suppressed ground level vegetation, reducing the quality of forested habitat for nesting, foraging, and other needs. The suppression of fire exacerbates the situation by eliminating a natural source of disturbance. Forests in this condition are also less vulnerable to wind and ice damage, which increase diversity within the landscape (as does the variability in fire intensity).

An associated issue is that virtually all (99%) of the watershed's **hardwood** forest (mostly xeric oak and hickory) is in mid-late successional stages. As a result, there is very little recruitment of

young oaks and hickories to replace the aging stands and provide valuable hardwood regeneration and a future mast and den tree source.

Another significant percentage of the forested acreage (23%) is in the sapling/pole stage (between 10 and 40 years old). These are former pine plantations. Within a forested landscape, this condition class is less valuable as wildlife habitat (too old to have high productivity and stem densities, too young to provide older forest attributes). Most of this successional stage is comprised of pine (97%).

Sumac Creek is almost completely lacking early successional stage forest habitat, especially in the hardwood communities. This habitat type is highly productive and diverse, and the condition is extremely short-lived (less than 10 years). Less than 1% of the watershed is within the 0-10 year age class, except for a few isolated patches of fire-or SPB-killed trees (about 59 acres). This situation is common throughout the Chattahoochee National Forest and the southern Appalachian Mountains, especially in the higher elevations. As a result, much of the fauna dependent upon this type of habitat have experienced declines to the extent that many have all but disappeared from the landscape (notably, ruffed grouse, northern bobwhite, and many resident and neotropical migrant songbirds (i.e. golden-winged warbler, prairie warbler, chestnut-sided warbler)).

The Sumac Creek watershed is within the 96,503 acre Cohutta Wildlife Management Area (WMA). Two gated system roads in the watershed are opened seasonally to improve hunter access (Lackey Knob – FS 630C, and Pleasant Gap – FS 17A). Approximately 15 acres within the watershed are currently managed as wildlife openings. About ½ of these have been recently rehabilitated by herbicide spraying and application of agricultural lime; they will be replanted this fiscal year. The remainder is in an undesirable condition due to encroachment by woody saplings, and the presence of sericea lespedeza, tall fescue, and annual weeds.

Outside of the wildlife openings, non-native invasive species such as Japanese stiltgrass and sericea lespedeza occurs on roadsides and in other disturbed areas, but detailed information about invasive plant locations is lacking.

Desired future conditions and recommendations

1. Maintain and restore natural communities in amounts, arrangements, and conditions capable of supporting viable populations of existing native and desired non-native plants, fish, and wildlife species within the planning area (Forest Plan Goal 4). Manage forest ecosystems to maintain or restore composition, structure, and function within desired ranges of variability (Forest Plan Goal 7).

Recommendation - Increase structural diversity of dense, closed-canopied stands by thinning pine and oak stands to a basal area of 50-60 square feet/acre or to an open woodland structure (20-30 BA) on appropriate sites.

Recommendation - Utilize prescribed fire or wildland fire to restore natural fire to the ecosystem, allowing varying intensities in order to increase habitat diversity while protecting resources. Emphasize burning on ridgetops, southern and western exposures in oak-hickory and pine forests.

Recommendation - Improve structural diversity in mesic deciduous stands by creating 2-3 acre canopy gaps, retaining a diversity of tree heights within the gaps. These gaps will become multi-layered and provide nesting and foraging habitat for neotropical migratory songbirds.

2. A diversity of habitat will be provided for the full range of native and other desired species. Sufficient amounts of interior or late-successional habitat as well as early successional habitat will be provided to meet needs of all successional communities. Early successional habitat will be well distributed in all forest types, elevations, aspects, and slopes including riparian corridors (Forest Plan Goal 2).

Recommendation – Utilize timber harvest to create the maximum allowable percentage of early successional habitat. There is an overabundance of older age stands which will continue to support wildlife species requiring interior or late successional habitats. Select stands in both pine and hardwood types for regeneration, well dispersed within the watershed.

Recommendation - Forest roads and trails within the watershed should be daylighted (roadside vegetation cut to allow sunlight to reach the ground) to provide early successional habitat; suitable segments of the roads and trails should be planted with grasses, forbs, and legumes.

3. Minimize adverse effects of invasive native and non-native species. Control such species where feasible and necessary to protect national forest resources (Forest Plan Goal 12).

Recommendation – Inventory and prioritize existing populations of invasive plants within watershed. Treat populations causing resource damage or at risk of expanding into areas with sensitive resources.

Fire

Existing conditions

Limited prescribed fire, disease, and insect damage have all led to the accumulation of hazardous fuel buildup within the watershed. Fire activity has been low to moderate. Prescribed fire usage has been very limited over the past 12 years. Some areas have been treated but have not been kept on a 3 to 7 year rotation (Appendix A, map 5). The primary Fire

Regime is 1 (0-35 year fire frequency and low to mixed severity) and Condition Class 2 and 3 (moderate and high departure from the historic regime). A large portion of this watershed is classified as WUI (Wildland Urban Interface).

Desired future conditions and recommendations

1. Reduce the risks and consequences of wildfire through fuel treatments that restore and maintain conditions of fire regime Condition Class 1 to the extent practicable (GOAL 58). Prescribe burn a three-year rolling annual average of 30,000 acres each year on the Chattahoochee and Oconee combined to meet plan goals and objectives (Objective 58.3).

Recommendations - Move the FRCC from a 3 to a 1. Reduce the hazardous fuels by 50%. Develop landscape level burn units and burn the units on a 3 to 7 year rotation. Utilize mechanical treatments if necessary.

Work with Georgia Forestry Commission (GFC), and Georgia DNR (GA-DNR) to identify private land holdings and explore opportunities to treat with prescribed fire under the Stevens Agreement.

Identify and assist the state in supporting Firewise community development.

Utilize mechanical and chemical fuels treatment reduction in areas that fire is not practical, or efficient.

Utilize the action plans from the Murray County Wildland Fire Protection Plan (MCCWPP). Including improved training and equipment for cooperators, improved public education, and improved cooperation with all the partners outlined in the protection plan.

2. Expand the role of fire to recover and sustain short interval fire-adapted ecosystems through the use of both prescribed and managed ignition fires (GOAL 61). Determine values at risk and conduct fire management operations to minimize damage to resources (GOAL 60).

Recommendations - Reestablish the historic fire return interval in the watershed. Concentrate fire efforts in the pine and dry-mesic oak sites and on ridgetops and south and westerly aspects. Utilize fire to reduce white pine encroachment and increase oak regeneration. Convert woodland areas thru the use of growing season fire.

Manage lightning-caused fires that occur within an approved prescribed fire perimeter, as much as possible, as a natural process.

Utilize growing season burning to facilitate fuel reduction of undesirable vegetation, and increase the prescribed burning windows. Growing season burn units need to be identified.

Utilize natural barriers or existing roads or firebreaks to the extent possible to reduce ground disturbance and costs.

Manage wildfires that occur within an approved prescribed fire perimeter, to achieve the objectives outlined in the plan, as long as environmental conditions fall within the prescription parameters.

Aquatic habitat/Soil and water quality

Existing condition

Sumac Creek is a tributary to the Conasauga River. As the stream leaves national forest, it is dammed on private property, creating the 52-acre Coffey Lake. Below the lake, the stream flows to the Conasauga through agricultural areas consisting of pasture and cropland.

The headwaters of Sumac Creek and its tributaries Muddy Branch and Cohutta Springs Branch are the primary perennial streams within the Sumac Creek watershed (Appendix A, map 2). Sumac Creek is composed primarily of a series of long flats and shallow pools broken up by short stretches of riffle area. Siltation is not common in this watershed, although there is a light deposit of fine organic and inorganic sediment in the quieter water. Productivity is limited by the large amount of bedrock evident in some sections of the stream. Other sections are quite productive with exceptionally good pool to riffle ratios. Gradient is gentle and scouring of the stream bottom is minimal. Fish populations in this watershed are dominated by Coosa endemics such as redeye bass, Alabama hogsucker, Alabama shiner, and tricolor shiner. Coosa darter, a locally rare species, is located throughout the drainage, but no federally listed fish or other rare aquatic species are present. Both rainbow and brown trout have been stocked in the past; most recent stocking has been done at the stream crossing on Highway 411. The stream is listed as a seasonal trout stream.

There are approximately 669 acres of riparian corridor (acres within 100 feet of a stream) within the watershed. There are very few stream crossings within the watershed. The headwaters of Sumac Creek cross Mill Creek Road (FS 630) via two metal culverts near the watershed's eastern boundary. The Sumac Creek Trail crosses Sumac Creek three times by fords.

Desired future conditions and recommendations

1. Restore and/or maintain aquatic ecosystems in amounts, arrangements, and conditions capable of supporting viable populations of all native and desired nonnative species of aquatic fauna within the planning area (Goal 26).

Recommendation- Assess all stream crossings in the watershed for barriers to stream biota passage.

Recommendation – Assess all stream crossings and road/trail segments within 100 feet of streams for evidence of erosion and sedimentation.

Roads

Existing conditions

There are 17.6 miles of Forest Service roads within the Sumac Creek watershed, and 0.3 miles of county roads. Within these roads, 0.82 miles of road is within 100 feet of a stream. The Forest Service utilizes the following “maintenance levels” to describe road conditions:

- Level 1. Closed to traffic for at least 1 year. Basic custodial maintenance is performed to keep road passable and prevent resource damage.
- Level 2. Roads open to use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor. Log haul may occur at this level.
- Level 3. Roads open and maintained for travel by a prudent driver in a passenger car. User comfort and convenience are not considerations. Roads are typically single lane, low speed, with turnouts and spot surfacing. Some roads may be fully surfaced with native or processed materials.
- Level 4. Roads with a moderate degree of user comfort and moderate traffic speeds. Most roads are aggregate surfaced and double laned; some may be single laned. Some may be paved or dust-abated.
- Level 5. Roads with a high degree of user comfort and convenience. Normally double laned, paved. Some may be aggregate surfaced and dust-abated.

The following Forest Service system roads and one county road are located in or provide access to the Sumac Creek watershed:

F.S. 630 Mill Creek: 8.65 miles ML 4

Road surface is very rough from pot holes and subsurface rocks extending into the surface. The ditch line is blocked in several locations. Several curves along this road have a tangent that will not allow tractor trailer traffic. Surface stone is not constant.

F.S. 17 West Cowpen: 7.68 miles ML3

Road surface is rough from pot holes. A few curves along this road have a tangent that will not allow tractor trailer traffic. Surface stone is not constant.

F.S 17A Pleasant Gap: 3.55 Miles ML 3

Road surface is rough from pot holes and subsurface rocks extending into the surface. Several curves along this road have a tangent that will not allow tractor trailer traffic. Surface stone is not constant. Brush and small trees are located along road banks and shoulders

F.S. 17C Cherry Gap: 0.50 Miles ML 1

Road is currently being used as an access route to a weather station, it has been opened up along the existing temporary road section pass the 0.50 mile post to access this station location. Road is spot surface with cut and fill slopes vegetated with small brush. Some grass is growing in the road bed. Several curves along this road have a tangent that will not allow tractor trailer traffic.

F.S. 630 B: Cohutta Springs: 3.3 Miles ML 2

From Mile post 0.00 to 0.80 this road is an easement across private property. There are several residents along this section of road. This section has a rough surface with several washouts in the roadbed. It is spot surfaced with one curve that will not allow safe tractor trailer use. The road is closed at M. P. 0.80 with a guard rail gate. From the guard rail to the end of the road the roadbed surface is native. There is vegetation along the roadbed with brush and trees on the banks and fills. There are several places that the road needs bladed.

F.S. 630 C Lackey Knob: 3.4 Miles ML 2

Road surface is rough from pot holes, washes, and subsurface rocks extending into the surface. Several curves along this road have a tangent that will not allow tractor trailer traffic. Surface stone is not constant. Brush and small trees are located along road banks and shoulders

F.S. 630F Mill Creek Spur: 0.265 Miles ML 1

This road is a blocked road that hasn't had any traffic in 10 or more years. There are trees in the roadbed, no surfacing, and the shoulders and cut banks have large vegetation on it.

F.S. 630G Scout Road 0.80 Miles ML 2

This road is a special use easement to private property. There are several part time residents at the end of the road. Roadbed is fully surfaced with small trees and brush along shoulders. There are small ruts along road surface. Pass mile post 0.80 road is narrow and has several very sharp curves. This section is maintained by the private residents.

F.S. 630 H Muddy Branch 1.0 Miles ML 2

This road is access to a wildlife opening. The roadbed has no surfacing, trees growing in the edge of the roadbed and along the cuts and fills. There are 3 small streams crossing this road with culverts installed. These culverts have been over topped in the pass.

F.S. 630 I Lackey Knob Spur 0.80 ML 2

This is a gated road that has the roadbed seeded. Trees are growing in the roadbed and along the cut and fill slopes. There is no surfacing on the roadbed.

County Road #27 Crandall/Ellijay Road:

Paved county road that is the lower access to this project. Road has a 2 inch pavement with an unknown base.

Desired future conditions and recommendations

1. Provide a transportation system that supplies the public, the Forest Service, and other authorized users with safe, environmentally sustainable, equitable, financially sound, and operationally effective access to roaded portions of the National Forest (Forest Plan Goal 47).

Recommendations:

F.S. 630 Mill Creek

Blade and ditch road to remove potholes and placing graded material over existing rocks to pad. Widen approximately 15 curves to allow safe traffic flow of tractor trailer haul vehicle. Replace surfacing to obtain a fully surfaced road.

F.S. 17 West Cowpen

Blade and ditch road to remove potholes. Widen approximately 5 curves to allow safe traffic flow of tractor trailer haul vehicle. Replace surfacing to obtain a fully surfaced road.

F.S 17A Pleasant Gap

Blade and ditch road to remove potholes and placing graded material over existing rocks to pad. Widen approximately 5 curves to allow safe traffic flow of tractor trailer haul vehicle. Replace surfacing to obtain a fully surfaced road. Mow road banks and shoulders.

F.S. 17C Cherry Gap

Blade and widen curves as needed to allow use of tractor trailer haul vehicle. Replace surfacing as needed. Mow cut and fills slopes

F.S. 630B: Cohutta Springs

Blade section along easement, widen curve, place surfacing and mow road banks and fills. On closed section blade and widen areas as needed, remove vegetation along shoulders, spot surface.

F.S. 630C Lackey Knob

Blade and ditch road, place graded material over existing rocks to pad. Widen approximately 3 curves to allow safe traffic flow of tractor trailer haul vehicle. Replace surfacing as needed. Mow road banks and shoulders.

F.S. 630F Mill Creek Spur

Reconstruct road with spot surfacing. Remove vegetation from cut and fills and reseed all exposed soils.

F.S. 630G Scout Road

Blade road to improve drainage, replace any surfacing lost during blading. Mow shoulders and banks. Widen curves to allow for tractor trailer use.

F.S. 630H Muddy Branch

Reconstruct this road, spot surface as needed, remove trees from cuts and fills, and replace culverts with larger and longer culverts. Seed all exposed soils.

F.S. 630I Lackey Knob Spur

Reconstruct this road, spot surface as needed; remove trees from cuts and fills. Seed all exposed soils.

County Road #27 Crandall/Ellijay Road

Road may need a pavement overlay to be able to carry the weight of timber removal.

Recreation**Existing condition**

Recreational use of the Sumac Creek watershed is considered low. Use is generally confined to hunting, fishing, dispersed camping, hiking, mountain biking, and horseback riding. The Sumac Creek Trail system and associated trailhead parking area are the only recreation facilities within the watershed.

Recreational Opportunity Spectrum (ROS) classes within the watershed range from Roaded Natural (RN) to Semi-Primitive Motorized (SPM) and Semi-Primitive Non-Motorized (SPNM).

The Sumac Creek Trail, FDT 217, Sumac Creek Spur Trail, FDT 217A, Pleasant Gap Road, FDR 17A, and Lackey Knob Spur Road, FDR 630I, form an 11.7-mile, figure-8, loop trail opportunity open to non-motorized users. FDT 217A forms the middle leg of the figure-8 loop. FDR 17A is open seasonally and FDR 630I is gated year round. For the Sumac Creek Loop, the Trail Class is 3, Developed/Improved, the Designed Use is Pack and Saddle, and the Managed Use is Hiker/Pedestrian, Pack and Saddle, and Bicycle. A trailhead parking area, large enough for 4-5

horse trailers, is located at the intersection of West Cowpen Road, FDR 17, and Pleasant Gap Road. Plastic blazers identify the trail location and directional signs are located at road and trail intersections.

The watershed is located within the Cohutta Wildlife Management Area. The area receives light seasonal use by hunters. FDR 17A and FDR 630C, Lackey Knob Road, are open for the fall deer/bear hunt. To accommodate turkey hunters, there is a staggered gate opening within the watershed: FDR 630C is open from mid-March to mid-April, and FDR 17A is open from mid-April to mid-May. Most of the dispersed camping is done by hunters. Undeveloped hunt camps are located at the end of both FDR 17A and FDR 630C.

Fishing pressure is low due to a lack of access and a limited sport fishery. Sumac Creek was at one time stocked with trout from a gated, non-system road off of FDR 17.

There is one recreational Special Use Permit issued to Cohutta Springs Adventist Center for an Outfitter-Guide operation. The Permit authorizes Cohutta Springs to guide equestrian groups from their property onto FDR 630G and 630F. A permit amendment also authorizes the permittee to conduct guided cross-country orienteering courses through the watershed.

Desired future conditions and recommendations

1. Provide a spectrum of high quality, nature-based recreation settings and opportunities that reflect the unique or exceptional resources of the Forest and the interests of the recreating public on an environmentally sustainable, financially sound, and operationally effective basis. Adapt management of recreation facilities and opportunities as needed to shift limited resources to those opportunities (Forest Plan Goal 31).

Recommendation: Recreation use emphasis is on dispersed activities such as hunting, fishing, hiking, or horseback riding but localized and limited development facilitates those uses (Forest Plan, Management Prescription 9.H).

2. Trails do not adversely affect soil and water resources (Forest Plan Goal 34).

Recommendation: When the level of recreational trail use has degraded water control structures resulting in sediment reaching a stream, the situation will be mitigated by utilizing all appropriate corrective measures scaled in intensity to the degree of the problem, up to trail closure if necessary (Forest Plan Standard FW-132).

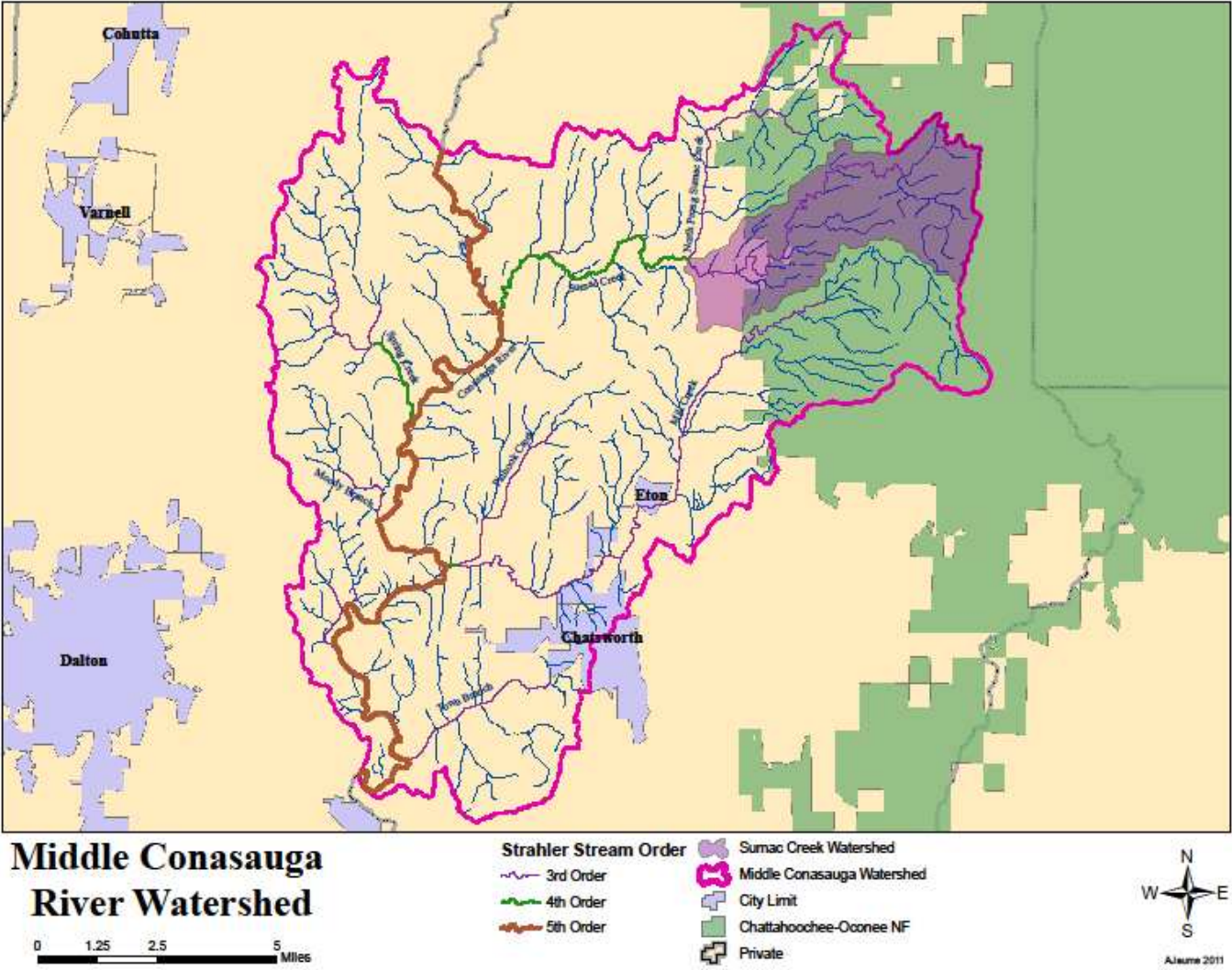
3. Recreation experience will be provided in a landscape character that will be natural appearing. Visitors are informed to expect limited, rustic amenities. Management is constrained to remain compatible with the existing ROS class and with the inventoried scenic class.

Recommendation: Areas will be managed to meet or exceed ROS settings, RN1, RN2, SPM, and SPNM (Forest Plan Standard 9.H-011).

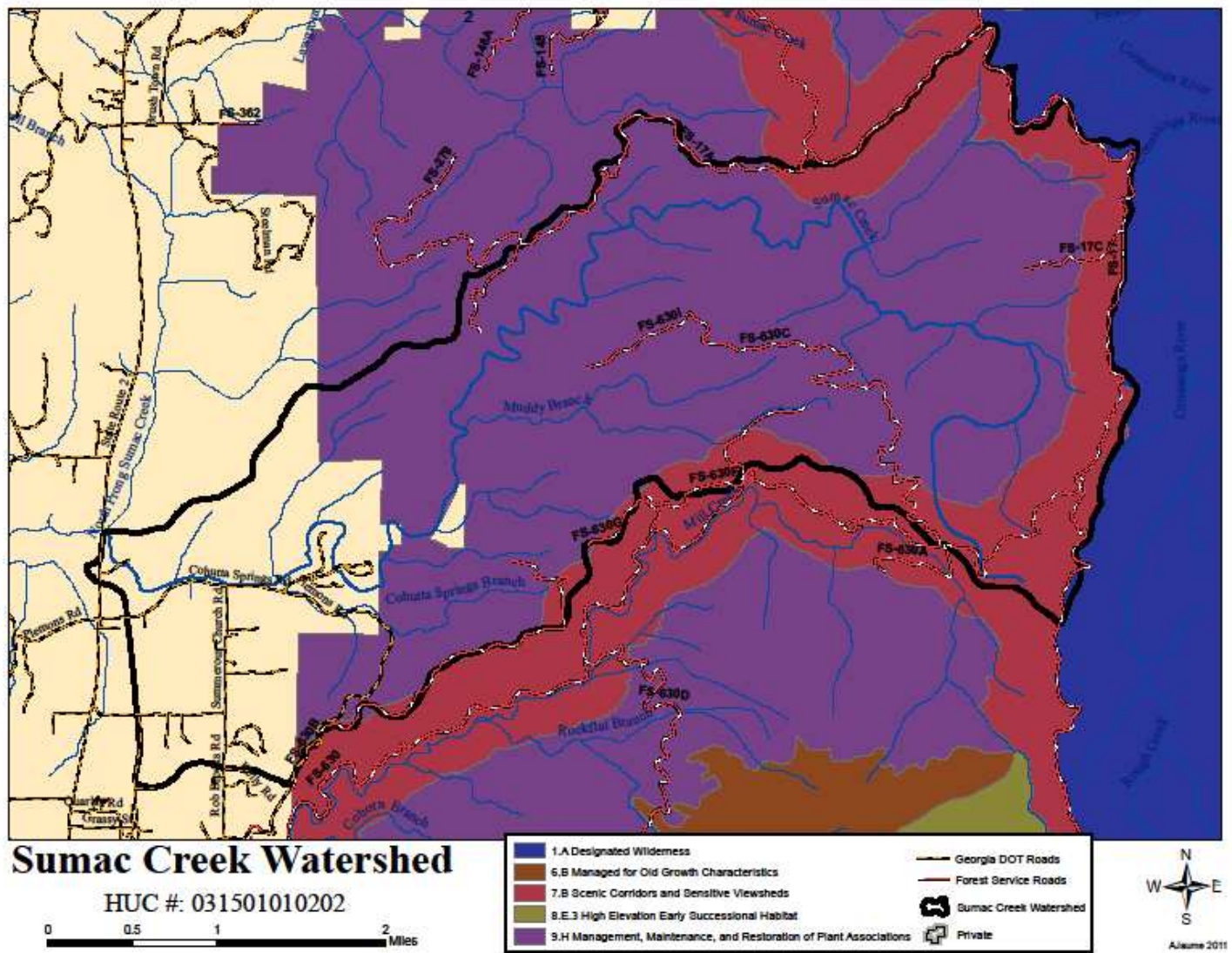
4. Manage special uses consistent with protection of natural resource values, public health and safety, and cost effectiveness (Forest Plan Goal 55).
5. Minimize the National Forest land area affected by special use permits and their conflicts with other National Forest values (Forest Plan Goal 56).

APPENDIX A. MAPS

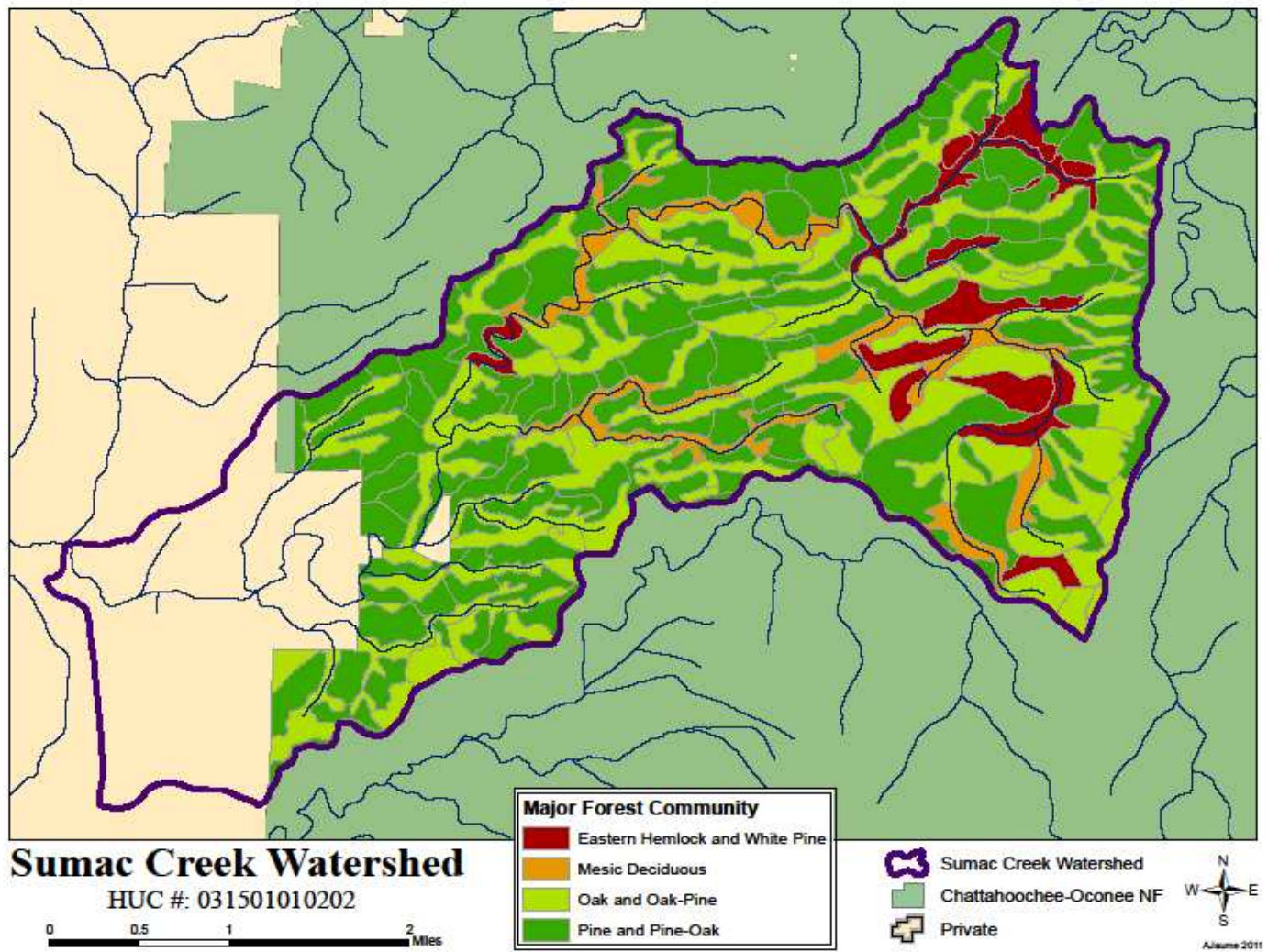
Map 1. Sumac Creek watershed within the Conasauga River (middle) 5th level hydrologic unit.



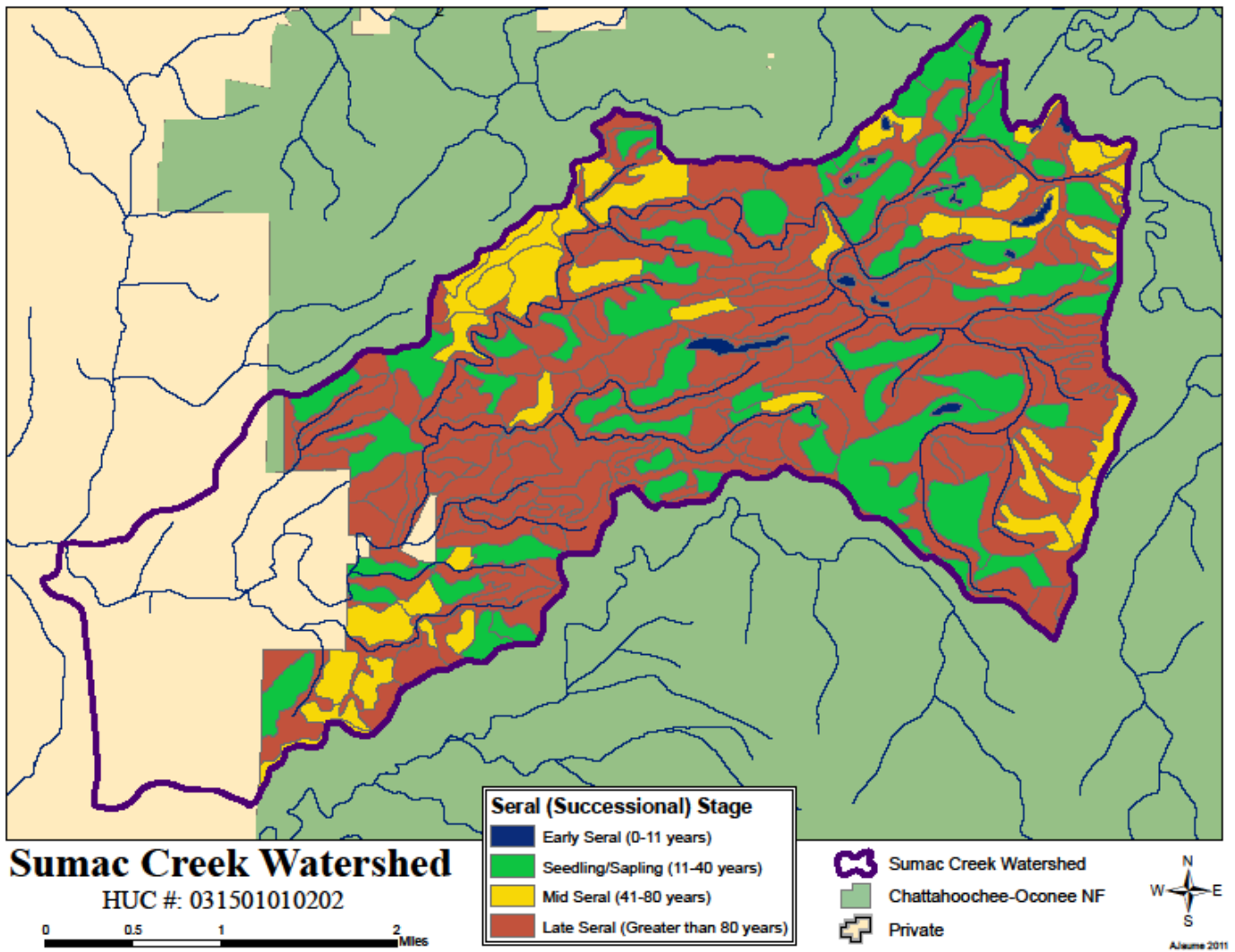
Map 2. Management prescriptions, roads, and streams within the Sumac Creek watershed.



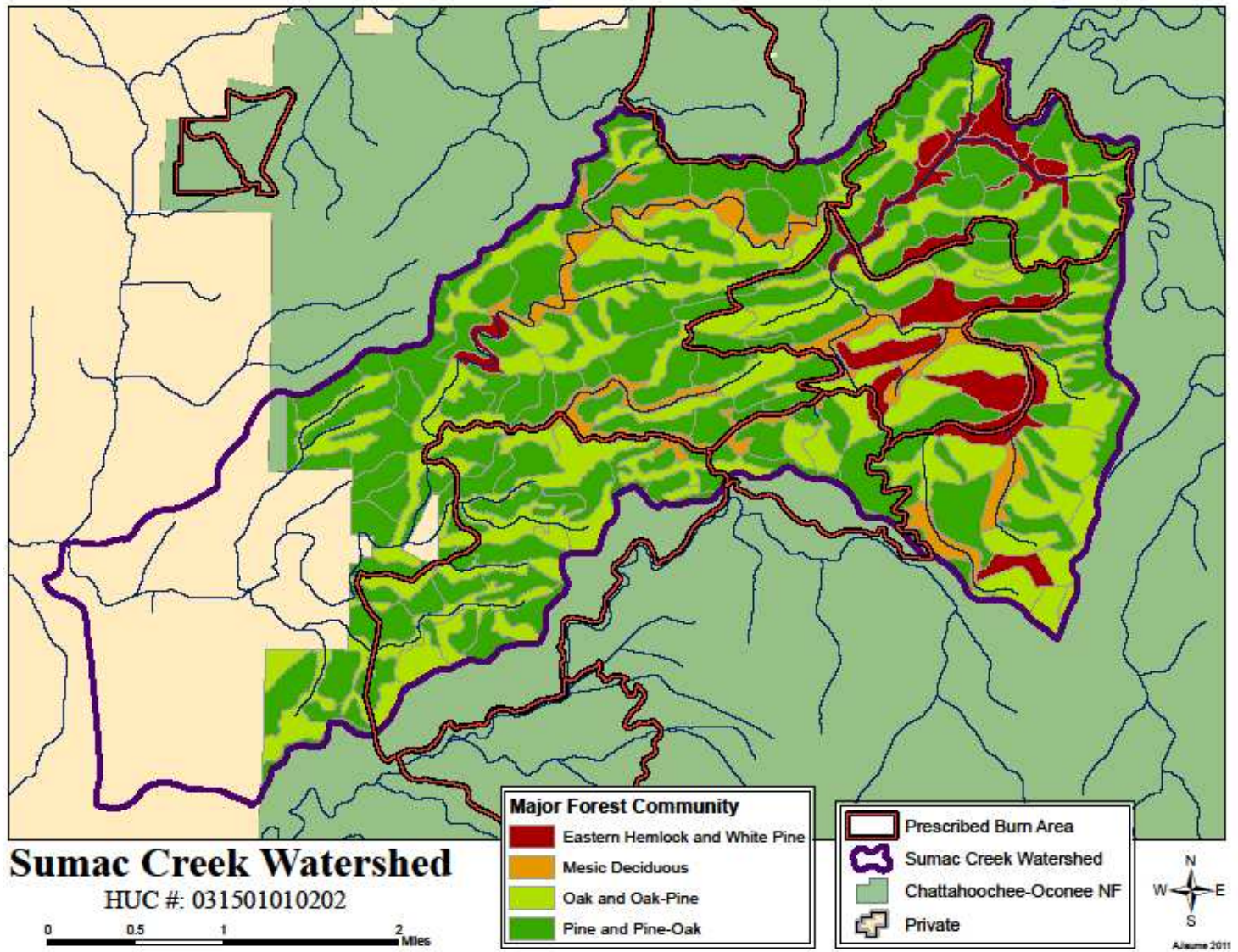
Map 3. Major forest communities in the Sumac Creek watershed.



Map 4. Seral stages of vegetation in the Sumac Creek watershed.



Map 5. Existing prescribed burning blocks within the Sumac Creek watershed.



APPENDIX B. LANDTYPE ASSOCIATION DESCRIPTIONS

LANDTYPE ASSOCIATION DESCRIPTIONS
CHATTAHOOCHEE NATIONAL FOREST - GEORGIA

Original - **8/30/95**

Revised - 2/18/97

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Following are narrative descriptions for Landtype Associations (LTAs) on the Chattahoochee National Forest in Georgia drafted during January - February, 1995 according to R8 criteria in effect at that date. These were revised intermittently throughout 1996, then totally revised and updated in February through April 1997 based on updated Regional direction.

**MASTER LIST - CHATTAHOOCHEE NF - GA LANDTYPE ASSOCIATION NAMES ORIGINAL
1/12/95; REVISED 2-4/97;**

<u>Working #</u>	<u>R8 LTA #</u>	<u>LTA Name</u>	<u>District(s)</u>
231D Southern Ridge and Valley Section; 231Dc Sandstone Ridge Subsection			
01	231Dc01	Armuchee Ridges	Armuchee
03	231Dc03	Shale Valleys	Armuchee
05 *	231Dc05	E. Armuchee Valley	Armuchee
M221D Blue Ridge Mountain Section; M221Dd Metasedimentary Mountains Subsection			
06	M221Dd06	Iron Mountain	Cohutta, Ocoee (TN)
07	M221Dd07	Cohutta Foothills	Cohutta, Ocoee (TN)
08	M221Dd08	Cohutta Mountains	Cohutta, Ocoee (TN)
09 **	M221Dd09	Mountaintown	Cohutta
10	M221Dd10	Flattop Mountain	Cohutta, Toccoa

11 **	M221Dd11	Copper Basin	Toccoa, Cohutta, Ocoee (TN)
12 **	M221Dd12	Cherrylog Ridges	Toccoa
13 *	M221Dd13	Murphy Basin (GA)	Brasstown, Tusquitee

LTA Description

Landtype Association: Called Cohutta Foothills (M221Dd07) in Georgia and Blue Ridge-Cohutta Foothills-Smoky Mountains (M221Dd04) in Tennessee.

General Location/Description: Located on the western-facing toeslopes and lower uplands of the Cohutta (Ga.) and Unicoi (Tn.) Mountains from GA Highway 282 near Ramhurst (north of Carters Lake) northward to the Hiwassee River in Tennessee. A transition zone from the Great Valley to the west into the higher elevations of the Blue Ridge and intermediate in elevations, landform, and climate.

Hierarchy: 200 Humid Temperate Domain; 220 Hot Continental Division; M221 Central Appalachian Broadleaf-Coniferous Forest Meadow Province; M221D Blue Ridge Mountains Section; M221Dd Metasedimentary Mountains Subsection.

Distinguishing features: Higher elevations and greater relief than adjacent Southern Ridge and Valley Section to the west but lower elevations and relief than Cohutta and Unicoi Mountains to the east.

I. PRIMARY DESIGN CRITERIA

A. Geology

1. Geologic rock types: Described in Georgia simply as phyllite, conglomerate and metagraywacke. Described in Tennessee as the "Walden Creek Group" containing four different Formations: (1) the Sandsuck Shale Formation of olive-green and gray, argillaceous, micaceous shale with coarse feldspathic sandstone and quartz-pebble conglomerate; (2) the Wilhite Formation of gray to green siltstone and slate with interbeds of pebble conglomerate, sandstone, and quartzite; (3) the Shields Formation containing massive conglomerate, sandstone, argillaceous slate, and conglomerate; and (4) the Licklog Formation containing feldspathic sandstone, greenish phyllite, and bluish-gray slate.

2. Geomorphic process: Partial metamorphism accompanying the upthrust of the Appalachians with faulting and folding. Ridges are composed of the resistant metagraywacke; often described as a "dirty" sandstone due to impurities.

3. Surficial geology: cba - granitic or arkosic metasedimentary bouldery colluvium

B. Topography

1. Landforms: westward trending ridges with <200' wide crests and narrow (< 100' wide) valley bottoms.

2. Slope gradient: Slopes range from 5-percent adjacent to streams to about 50-percent but steep slopes are small and localized. Typical slopes are 20 to 40-percent.

3. Elevation (feet, range of elev. or relief): Elevations gradually increase from south to north. In Georgia the western edge of this LTA occurs along the Great Smoky Mountain (Cartersville) Fault at the edge of the Metasedimentary Mountain and Southern Ridge and Valley Subsection at approximately 800' elevation and extends eastward and upward in elevation to 2000' at the foot of the Cohutta Mountains or a relief of 1200'. North of Cisco, Georgia this LTA no longer borders the Ridge and Valley but becomes an interior plateau and the east side bordering the Unicoi Mountains rises to 3000'. Total relief is thus 2200' but typical relief inside the LTA is about 1000 feet.

C. Local Climate - Climate is not modified noticeably by elevation in this LTA from that of the adjacent Southern Ridge and Valley Section, at least in Georgia.

1. Average annual precipitation (in): Precipitation gradually decreases from south to north. In Georgia an average of 56" occurs each year based on the Chatsworth, Carters, and Beavertdale stations. In Tennessee the average declines to about 51 to 52" each year.

2. Seasonality of precipitation: Rainfall is greatest in late winter with seasonal dry periods in early spring and fall.

3. Winter/summer mean temperature (Fahrenheit): In Tennessee the January minimum is 21 and the maximum is 40; the July minimum is 60 and the maximum is 82. The average annual temperature (oF) is 60° in Georgia.

4. Growing Season length (days): Ranges from a high of 215 days at the southwestern corner to about 205 days on the northeastern corner with an average being 210 days.

II. ASSOCIATED CRITERIA

A. Soil series or associations: Described for Georgia as Tsali, Junaluska, Cataska, soil series (Ultisols). Described for Tennessee as Sylco-Ranger-Citico-Fletcher (loamy, skeletal, mixed, mesic; fine-loamy, mixed, mesic; and fine-silty, mixed, mesic). Moderately deep to shallow loamy and channery soils derived from phyllite, slate, and shale on ridges and steep slopes with deep loamy soils from colluvium in valleys, coves, and on toeslopes.

B. Vegetation associations:

1. Potential overstory: Oak-hickory-pine (Kuchler);

2. Historic overstory: Oak-pine-hickory (Plummer). Plummer's interpretation supported by FS field experience of formerly greater abundance of shortleaf pine.

3. Existing overstory:

a. Georgia - Virginia pine, chestnut oak, and scarlet oak are primary species. Upland oak communities of white oak-black oak-and hickory occur along drainages and on north and east slopes. White pine occurs mixed with yellow pines but rarely as its own cover type. Mesic site hardwoods such as northern red oak, yellow poplar, and beech do not occur as communities but as narrow 'stringers' adjacent to streams. Natural loblolly occurs along Mill and Sumac Creeks near the Southern Ridge and Valley Section boundary.

b. Tennessee - Vegetation communities (in no particular order) are: Southern Appalachian Mesophytic Cove Forest, Chestnut Oak Slope and Ridge Forests, Dry White Pine Ridge Forests, Montane Oak-Hickory Forests, Interior Upland Dry-Mesic Oak-Hickory Forests, Xeric Virginia Pine Ridge Forests, and Southern Appalachian Alluvial Forests.

Woody plant species occurring in the Georgia portion of this LTA but not known in adjacent ones include chalk maple and oak-leaved hydrangea along Muskrat Road north of the Holly Creek Work Center. Carolina rhododendron (*Rhododendron minus*) is a common understory shrub. Sparkleberry (*Vaccinium arboreum*) and blackjack oak (*Quercus marilandica*) also occur with sparkleberry occasionally being a major understory component. Uncommon herbaceous plants in Georgia include spider lily (*Hymenocallis* sp.) and turkeybeard (*Xerophyllum asphodeloides*). Spider lily occurs in the Sandstone Ridges Subsection to the west and on into Alabama. Turkeybeard is associated with very xeric sites.

C. Aquatic Resources

1. Aquatic systems and types: Riverine; several large perennial systems exist in the LTA which have their headwaters in the Cohutta Mountains LTA to the east. Examples are Rock Creek, Muskrat Creek, Cohorn Creek, Holly Creek, Mill Creek. Sumac Creek is notable for having almost its entire upper watershed in this LTA. This LTA also has the main stem of the Conasauga River and some large tributaries. The character of the Conasauga River is quite different in the Alaculsy Valley along the Alaculsy Fault than in the remainder of the area.

2. Channel condition/characteristics: Channels are primarily low gradient with some moderate gradient, moderately entrenched, either step\pool or riffle flow and low to moderate sinuosity. Stream substrate is bedrock, boulder, or sand. Larger streams within this LTA are low gradient usually with exposed bedrock bottoms. Sumac Creek, on the north end of the LTA, has an average gradient of about 2-percent. Portions of the Jacks River and Conasauga River are found in this LTA and waterfalls are found where tributary streams enter the river gorge. Conasauga River substrate is primarily gravel, cobble and bedrock. There are large amounts of gravel within Rock Creek.

3. Flow/runoff characteristics: Streams are 'flashy' and response with increased flow moderately or very rapidly after rainfall and decline rapidly as well. Rockflat Branch in Georgia is especially notable for this characteristic. Months of highest flow are January through April. Lowest flow months are August through October when reaches of dry streambed with scattered pools occur. There is reason to suspect that some water which begins as stream flow goes underground along the Great Smoky Mountain Fault in this LTA and emerges in the numerous springs along US 411; for example, Cohutta Springs and several springs at Eton, Georgia. In February, 1992, a flood washed away road segments throughout this LTA.

4. Drainage density and patterns: The density of all stream types - ephemeral, intermittent, and perennial - is 10 mi./sq.mi. of a dendritic pattern. Streams emerging from the mountains into the Southern Ridge and Valley Section typically take an abrupt turn south and southwest and cross US 411 far below the mountain valley containing their headwaters.

5. Water Chemistry/Quality: Water is slightly acidic with low neutralizing capacity due to lack of base elements. Inorganic nutrient availability is low. Water quality to support State-designated beneficial uses is good with only 6-10% of major stream miles not fully supporting the designated use.

D. Cultural Influences: Prior to the logging era, there were scattered 'farmsteads', within this LTA both on the stream terraces of the larger streams and on the broader ridges. Some of the family names were Kitchens, Keener, McArthur, and Murray. Water-powered grist and sawmills served these families. Forested lands were used for hunting, grazing cattle, foraging hogs, and gathering firewood, fence rails, and building logs. The Sumac Creek valley was the location of an 'old settlement road' leading to these farms from the Southern Ridge and Valley Section. Cohutta Springs was a tourist resort after the Civil War and had been being visited for several years prior to 1876 (Janes, 1876). Industrial logging began in about the 1880's and accelerated with the arrival of the railroad through Conasauga, Tn and Tennega, Crandall, Eton, and Chatsworth, Georgia in 1905. The Alaculsy Lumber Company operated here before 1910 when they sold out to the Conasauga River Lumber Company. Along Mill Creek east of Crandall, Ga was a sawmilling community called 'Beardtown'. Logs were brought to the mill by flume and railroad down Mill Creek. Some of the tributary streams in this LTA were used as wagon roads and still have the remains of corduroy in the stream. Fire and stock exclusion by the Forest Service after about 1930 has resulted in dramatic forest regrowth, including encroachment of white pine. Salvage and selection logging by the Forest Service in the 1950's and 60's removed residual low-quality shortleaf pine from much of the area. This LTA includes the Alaculsy Valley which includes a segment of the Conasauga River. During Cherokee occupation, an iron furnace, store, and grist mill were located in the Valley (Thurman Parrish, personal communication). Following the Removal, the iron mining community of Alaculsey was located here also. Most of the Valley itself remains in private ownership. The Cottonwood Patch Horse Camp is located on National Forest in the Alaculsey Valley.

E. Fauna: Representative mammals in this LTA are white-tailed deer, black bear, raccoon, gray squirrel, fox squirrel and cottontail rabbit. The ruffed grouse, bobwhite quail, wild turkey and mourning dove are the game birds found in this LTA but grouse, quail, and dove each have limited habitat. Representative neotropical migratory and resident landbirds include summer tanager, cardinal, tufted titmouse, wood thrush, red-eyed vireo, Carolina wren, blue-gray gnatcatcher, Carolina chickadee, northern junco, red-tailed hawk, the yellow-rumped warbler and the Canada warbler. The herptofauna includes eastern box turtle, common garter snake, timber rattlesnake, green anole, and the wood frog. The Conasauga River has the most diverse fish and mussel assemblage on the Chattahoochee N.F. There are also a large number of endemic fish and mussels within this LTA and thus the reason that most of the aquatic PETS on the Chattahoochee are within this drain. The Conasauga supports an outstanding redeye bass fishery from the lower

reaches through Alaculsy Valley. Trout fishing on the river is some of the best on the Forest. The tributaries are also better than average trout streams. Emory Creek and Holly Creek support an excellent rainbow trout fishery.

The southern-most extension of trout on the west side of the Chattahoochee occurs in Rock Creek and it is also where the breakout occurs with redbreast sunfish occurring east and longear sunfish to the west on the Forest from this creek.

The federally listed blue shiner, Conasauga logperch, and fine-lined pocketbook, southern pigtoe, and ovate clubshell mussels all occur in this LTA. The Forest sensitive trispot darter and bronze darter also occur.

F. Relationship to other LTAs: This LTA is similar in relief, geology, geomorphic process, and climate to the Armuchee Ridges LTA in the Sandstone Ridges Subsection to the west. It shares plants found there, such as the spider lily (*Hymenocallis* sp.). This entire LTA is probably best understood in Georgia as a transition from the Southern Ridge and Valley Section to the Blue Ridge Mountain Section.

G. Natural processes: Tornadoes and ice storms are two types of climatic events which shape forest composition. A tornado in 1974 blew down extensive areas on Sumac Creek headwaters and near Murray's Lake, each on the Cohutta District. Older Virginia pine and white pine is typically infected with the red-heart rot decay fungus (*Fomes pini*). The blizzard of March 1993 also affected this LTA. Twig pruning of hickory by the hickory twig girdler is often evident in late summer and fall. Southern pine beetle epidemics also occur periodically. Lightning-ignition wildfires occurred here in the summer of 1988, the last year of a 5-year drought in the southeastern US.

H. Comments: